INFLATION AND TIRE TROUBLES

Points of Interest to Motor-Car Owners Discussed by Expert.

SIZE OF THE AIR CUSHION

A pneumatic tire consists of two things, of which one is as important as the other. One of these is an air cushion, the other is an envelope for retaining air under pressure and making this air cushion possible. This envelope is spoken of by the trade as the tire, and, as every motorist knows, consists of a casing and an inner tube, the casing to resist road wear and the tube to furnish an air-tight inclosure for the air inside. The casing is made of rubber and fabric and the tube of rubber. This mass of rubber and fabric construction will not sustain the weight of any car; it is the air cushion it retains that supports the car's weight.

Naturally, a larger car will require more of an air cushion than a smaller, and, in the same way, a larger tire to carry this larger air cushion. A car of given weight requires a tire of a given size containing air under a given pressure.

Let us consider the result when the tire does not contain proper air pressure. It already has been pointed out that the tire itself cannot sustain weight, but that this is the purpose of the air cushion inside. But when this air cushion consists of air under insufficient pressure, the tire is forced to sustain part of the weight itself, exactly in proportion to the deficiency in the air pressure, something it is not built to do.

Tire Flattened Out.

The first result is that the weight above, being no longer properly sustained, flattens the tire out where it rests on the ground. Then, when the car is put in motion, every part of the tire on reaching the bottom must assume this unnatural flattened shape. Each side must bend out and then back again at every revolution.

The body of the casing consists of several piles of fabric united as a whole by the rubber which has been vulcanized through and through. And when the side walls bend in and out because of underinflated condition, these fabrics layers do not unite their strength and act as a unit, as they are meant to, but the unnatural bending makes one layer pull against the one next to it. They fail to reinforce each other as they should.

Continually pulling against each other, these fabric layers in time pull apart, separating from each other. The same conditions which caused them to pull against each other now causes them to rub and chafe. This produces friction and heat. The different layers soon wear each other out, and so soon as some one place becomes too weak to sustain the inside air pressure, the tire gives way with a "blow-out."

The tire manufacturer tries to make perfect casings and tubes. A perfect casing and tube is one of the factors of good tire service. The other factor is correct air pressure, and this is up to the motorist.

Several Kinds of Abuse.

There are several kinds of tire abuse, but as proper inflation is so vitally important, insufficient inflation is more damaging than anything else. The statistics compiled by all the leading tire manufacturers indicate that more than 75 per cent of tires that have gone out of service prematurely did so because of insufficient inflation.

There are several indications of underinflation. The most common one is the condition of the inside fabric. Underinflation separates the fabric layers and this separation shows itself by means of a ridge or roll of fabric on the lower part of the side wall on the inside of the casing. This is before the tire is ready to give way completely. After a tire with separated fabric is run a while and then removed it will be found that the fabric at the place it was rolled up into a ridge before is now cracking and beginning to break. In this condition it is soon ready to give way.

Another condition is the loosening at the tread. Under-inflation produces a little roll right in front of the point of contact with the ground, which in time tends to separate the tread.

In the case of a clincher tire, underinflation usually permits the tire to be rim-cut before the fabric gives way of itself. Bending in and out increases the normal action of the hook of the rim against the clincher bead of the tire.

The Right Pressure.

It will be interesting to know how to determine the right pressure. Use twenty pounds for every inch of width. For example, use sixty pounds in a tire three inches wide, seventy pounds in a three and one-half-inch tire, eighty pounds in a four-inch tire, &c.

As under-inflation is such a universal cause of trouble, it develops that the reason the average motorist does not give the air pressure in his tires the attention he should is because he does not realize its importance.

In addition to pointing out the danger of under-inflation it is necessary to show how to guard against it. There are two precautions the motorist can take which will do this; one is to inflate the tire properly at first, and the other is to add to the tire every few days enough air to balance what has been lost in the meantime. No tire is absolutely air-tight, so it should be inflated every few days. To be sure about the proper pressure the motorist should use a pressure gauge. A number of reliable and inexpensive gauges are on the market, which will pay for themselves several times in reducing tire expense.

To summarize then, an analysis of the causes of deficient tire service by the leading tire manufacturers shows that in over 75 per cent of the cases under-inflation is responsible. Under-inflation ruin can be avoided by observing the following rule. Cut this out and carry it in your pocket or paste it up in your garage:

KEEP TIRES INFLATED ACCORDING TO THE FOLLOWING:

2½ inch	50 lbs.	4½ inch	90 lbs.
3 inch	60 lbs.	5 inch	100 lbs.
3½ inch	70 lbs.	5½ inch	110 lbs.
4 inch	80 lbs.	6 inch	120 lbs.

Use a pressure gauge and test your tires at least twice a week, pumping in what they need to bring the pressure up to the required amount. It is not enough to inflate the tire properly when you do inflate it, for if it isn't inflated again soon the pressure will drop far below the recommended amount. The average pressure should be kept up as nearly as possible equal to the recommended pressure.

MOTORING NEWS AND VIEWS FOR THE CAR OWNER AND THE TRADE

By AUGUSTUS J. FERTIG.

The demonstration of the efficiency of the service department of the Overland Washington Motor Company will start tomorrow morning in the window of the salesrooms of the company, at 829 Fourteenth Street Northwest, when a force of mechanics will comence the reconstruction of a car that several days ago was burned to an almost unrecognizable mass. The parts that will be used in the reconstruction of the damaged car will be taken from the service department of the local company.

Arthur Forsker, of the Potomac Motor Car Company, is spending a few days in New York. From there he will go to visit the Marmon factory at Indianapolis, Ind., and the factory of the Woods Electric Company at Chicago.

Joseph M. Stoddard, of the Cook & Stoddard Company, will return from his country home in West Springfield, Mass., tomorrow.

A guessing contest in which the lucky one may become the possessor of a Cutting 40-horse-power car that sells regularly at $1,670, for $1,350 delivered, is being evolved by Robert H. Love. It is intimated that the details of the contest may be learned by visiting Mr. Love's office.

The Commercial Automobile and Supply Company reports the following sales: Col. Joseph A. Kuhn, Washington barracks, six-cylinder Studebaker; O. J. De Moll, "25" Studebaker touring car, and Charles Nelson Chase, a Studebaker "35."

Gill Anderson, driving a Stutz car at Elgin, Ill., broke the world's record by covering 302 miles at a rate of seventy-two miles an hour.

William Fait, jr., manager of the Washington branch of the Firestone Tire and Rubber Company, of Akron, Ohio, has returned from the annual sales convention in that city.

Special cars for the trip were used by some of the Eastern and Western men, though many made the trip individually. The visitors were met at the station in Akron by representatives of the Firestone Company and directed to the largest and best hotel in town, several floors of which had been reserved. The hotel had been decorated with Firestone pennants and tires, and orders were given that nothing was to be left undone to put the guests at their ease.

The big days of the convention were October 9 and 10. At 10 o'clock in the morning of October 9, formal organization was effected. Then for two days every phase of the manufacture of tires and the directing of the industry was discussed. The men on the road were given a perfect knowledge of the problems which confront those inside, and the travelers discussed the troubles which crop up and demand their solution.

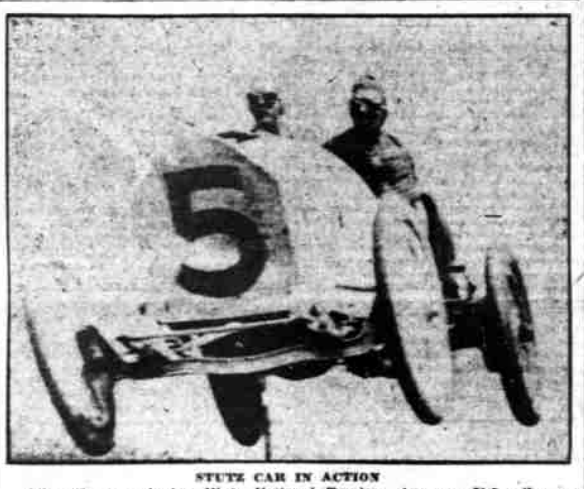
The most noticeable thing which presented itself to the visitors, according to Mr. Fait, was the growth of the factory since last year. One addition has been made to the tire plant, and two new wings are in course of construction. They will be finished in the spring.

Growth of the Firestone Company was one of the things brought out at the convention. When the additions are completed, the output of the factory will be greatly increased, obviating, it is thought, the danger of the demand for Firestone tires exceeding the supply, which threatened last year. The old Firestone factory, the home of the company until two years ago, is entirely given over to the manufacture of rims, and that branch of the business is outgrowing its quarters.

The stay in Akron was not occupied by all work to the exclusion of play. On the night of October 9 the visitors were taken in automobiles to a hotel on the chain of lakes near Akron, where a turtle, fish, and chicken dinner was served. The next night the annual Firestone banquet was given at the Portage Hotel. Souvenirs of the convention were distributed, and after the dinner Firestone songs were sung.

"And it is all going to happen again next year," is what Mr. Fait cheers himself with when he regrets that the convention did not last longer.

A steel rail lasts, with average wear, about eighteen years.



STUTZ CAR IN ACTION

Gil Anderson winning Elgin National Trophy. Average, 71.5 miles per hour for 301 miles.

COAL GAS DECLARED GASOLINE SUBSTITUTE

Clyde J. Coleman, from Experiments Conducted, Believes There Is No Doubt of Success of His Fuel.

MANY TESTS HAVE BEEN MADE

A substitute for gasoline has long been looked for because of the eminent shortage of the present motor fuel, and now that an announcement has been made of a substitute fuel the motoring world has been longing to learn of it and of its practicability.

Clyde J. Coleman, the inventor of this gasoline substitute, known as the Coleman gas producer, has been working on a series of tests and he makes known what he has accomplished.

The original tests made by Mr. Coleman in his laboratory to determine whether he could, with his system and process, produce a sufficiently rich gas from coal to operate an automobile engine up to full capacity without making alterations in its present construction, were very conclusive. He found that with high engine speeds the torque and speed was above what he could obtain with gasoline.

This was no doubt partly due to the more complete combustion of the permanent gas from the producer over that obtained from gasoline vapor, because at low engine speed there did not seem to be so great a difference between the gas and gasoline except, of course, the large economic difference which exists irrespective of the size or speed of the engine employed.

His more recent tests have been on more specific lines, namely, that of determining the practicability of gas controlled from a small lever, corresponding to a throttle lever, so that the generator will respond to any change of position of this lever and in this way control the engine speed or torque to meet the load requirements of the same. Mr. Coleman furthermore has in mind the working out of a clean and easily operated method for recharging the coal bunkers and removal of ashes.

All of the above problems have been thoroughly tested out and the tests indicate conclusively that there can be no question as to the success and superiority of coal gas as an economical substitute for gasoline as a motor fuel. Mr. Coleman is now engaged on the construction of a full-size commercial producer, which will be completed in about thirty days.

Posted.

From Judge.

"You seem to be very intimate with the Dighys. I didn't know you had met them."

"I haven't met them. I patronize their dressmaker."

The rice crop of Burma is harvested from October to December. Heavy floods in August and September, 1911, destroyed the crops in extensive areas of Lower Burma.